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CLAIMS

1. System (6), comprising:

- At least one source (10; 20; 30; 40) designed for the generation of at least one emission,
- At least six devices (1; 2; 3; 4) for the measurement of a speed, which are arranged in the system (6) for the measurement of a speed and of a rotation of the system (6) in different spatial directions (70, 71, 72), wherein each of the at least six devices (1; 2; 3; 4) exhibits at least two paths (11, 12; 21, 22; 31, 32; 41, 42), on which, respectively, at least one part of the at least one emission generated by the at least one source (10; 20; 30; 40) propagates with a respective known wavelength and a respective known propagation speed, wherein the paths (11, 12; 21, 22; 31, 32; 41, 42) are formed in such a way that a translatory movement of the individual device (1; 2; 3; 4) causes a phase displacement between the emission parts propagated on the at least two paths (11, 12; 21, 22; 31, 32; 41, 42) of the device (1; 2; 3; 4), and
- Evaluation means (13; 23; 33; 43, 44) designed for the detection of emission parts which leave the respective at least two paths (11, 12; 21, 22; 31, 32; 41,4 2) of the devices (1; 2; 3; 4), and for the determination of the speed of each of the devices (1; 2; 3; 4) in at least one spatial direction, respectively, by the evaluation of a change in the phase displacement between the detected emission parts in comparison with a phase displacement with the device (1; 2; 3; 4) at rest,

wherein the system is designed in such a way that a change in the phase displacement of the emission parts detected by the evaluation means (13; 23; 33; 43, 44) for respectively one of the devices (1; 2; 3; 4) due to a rotational movement of this device (1; 2; 3; 4) is prevented or compensated for.

2. System (6) according to Claim 1, wherein the at least two paths (11, 12) of a respective device (1) exhibit different materials or different combinations of materials.

3. System (6) according to Claim 1 or 2, wherein the at least two paths (21, 22) of a respective device (2) exhibit different geometric lengths.

4. System (6) according to one of the foregoing claims, wherein, in order to prevent a change in the phase displacement between the emission parts detected by the evaluation means (23) due to a rotational movement of a respective device (2), each of the at least two paths (21, 22) of the device (2) exhibits, outside an imaginary straight line, path parts of essentially equal size on opposite sides of this straight line.

5. System (6) according to one of Claims 1 to 3, further comprising detection means (14) designed for the detection of a rotational movement of a respective device (1), wherein the evaluation means (13) are designed for the compensation of a change incurred by a rotational movement on the at least two paths (11, 12) of the respective device (1) in the phase displacement between detected emission parts on the basis of information from the detection means (14).

6. System (6) according to one of the foregoing claims, wherein the at least two paths (31, 32; 41, 42) of the respective device (3; 4) are designed in such a way that they exhibit at least one common path section (34), which is run through in opposite directions by the emission parts fed into the at least two paths (31, 32; 41, 42).

7. System (6) according to Claim 6, wherein the common path section is designed in such a way that it exhibits a path part which is run through by one of the emission parts essentially in the direction of measurement of the respective device (4) and a path part which is run through by this emission part essentially in the opposite direction, wherein the two path parts, with the device (4) at rest, exhibit a different physical length.

8. System (6) according to one of the foregoing claims, further comprising an acceleration sensor designed for creating a reference to the local gravity normal.

9. System (6) according to one of the foregoing claims, wherein the at least six devices (1; 2; 3; 4) are arranged on the six faces (61, 62, 63) of a cube, wherein the devices (1; 2; 3; 4) exhibit on adjacent faces (61, 62, 63) measurement axes (71, 72, 73) aligned at right angles to one another, and wherein the devices (1; 2; 3; 4) exhibit on mutually opposing faces measurement axes aligned opposite to one another.

10. Method for the measurement of a speed and a rotation of a system (6), wherein the method comprises for each of six devices (1; 2; 3; 4) of the system (6), arranged in different spatial directions:

- The generation of at least one emission,
- The transfer of respectively at least one part of the at least one emission on at least two paths (11, 12; 21, 22; 31, 32; 41, 42) with a respective known wavelength and a respective known propagation speed, wherein a translatory movement of the device (1; 2; 3; 4) causes a phase displacement between the emission parts propagating on the at least two paths (11, 12; 21, 22; 31, 32; 41, 42);
- The detection of the emission parts leaving the at least two paths (11, 12; 21, 22; 31, 32; 41, 42), and
- The determination of the speed of the device (1; 2; 3; 4) in at least one spatial direction by the evaluation of a change in the phase displacement between the detected emission parts in comparison with a phase displacement with the device (1; 2; 3; 4) at rest, wherein a change in the phase displacement of the emission parts due to a rotational movement of the device (1; 2; 3; 4) is prevented or compensated for,

wherein the method further comprises a determination of the speed and the rotation of the system (6) from the speeds detected for the respective device (1; 2; 3; 4).

11. Method according to Claim 10, wherein the at least six devices (1; 2; 3; 4) are arranged on the six faces (61, 62, 63) of a cube, wherein the devices (1; 2; 3; 4) on adjacent faces (61, 62, 63) determine the speed in spatial directions at right angles to one another, and wherein the dévices (1; 2; 3; 4) on opposite faces determine the speed in spatial directions opposed to one another.